Sports instructors and coaches instruct and referee the outdoor and indoor games of people learning to play a sport.

Depending on the sport or physical activity involved, instructors and coaches use different kinds of equipment. Many work with children or young adults, helping them to learn new physical and social skills, while also improving their physical condition.

Working Conditions

Irregular work hours are common—many instructors and coaches work part-time, evenings, and weekends. Instructors and coaches in educational institutions may work additional hours during the sports season. Some coach more than one sport, and may work year round. Some work outdoors, depending on the sport or activity. Instructors and coaches may travel frequently to games and other sporting events. Their work is often strenuous and they must guard against injury when participating in activities or instructing others.

Employment

Sports and physical training instructors and coaches held about 359,000 jobs in 1998. About 1 out of 6 was self-employed. Almost half of salaried workers were in public or private educational institutions. Amusement and recreation services, including health clubs, gymnasiums, and sports and recreation clubs provided almost as many jobs. Most of the remaining jobs were found in civic and social associations.

Training, Other Qualifications, and Advancement

Education and training requirements for instructors and coaches vary greatly by type of employer, area of expertise, and level of responsibilities. Some entry-level positions only require experience derived as a participant in the sport or activity, while others require substantial education or experience. For example, aerobics instructor jobs are usually filled by persons who develop an avid interest in the activity by taking aerobics classes and then become certified. On the other hand, some coaches must have qualifying experience such as past participation in the sport, or must work their way up through the coaching ranks.

School coaches and sports instructors at all levels usually have a bachelor's degree. Employers within the education industry often draw first from teachers and faculty when seeking to fill a position. If no one suitable is found they hire someone from outside. Coaches may have to be certified, in accordance with the school district's policies. Some districts require recertification every 2 years. A master's degree may increase opportunities for employment and advancement. Degree programs are offered in exercise sports science, physiology, kinesiology, nutrition and fitness, physical education, and sports medicine.

Certification is highly desirable for those interested in becoming a fitness, aerobics, tennis, karate, golf, or any other kind of instructor. Often one must be at least 18 years old and CPR certified. There are many certifying organizations specific to the various types of sports or activities and their training requirements vary depending on their standards. Part-time workers and those in smaller facilities are less likely to need formal education or training.

Instructors and coaches must relate well to others. They also must be resourceful and flexible to successfully instruct and motivate individual students or groups. Good communication and leadership skills are essential.

Job Outlook

An increased need for instructors and coaches is expected to increase employment in this occupation faster than the average for all occupations through the year 2008. Additional job opportunities will be generated by the need to replace workers who leave the occupation. Job prospects should be best for those with bachelor's degrees and extensive experience within their specialization.

Demand for instructors and coaches will remain high as long as the public continues to participate in sports as a form of entertainment, recreation, and physical conditioning. Health and fitness clubs will continue to change to address the public's ever-changing tastes. In addition, as the more active baby-boomers replace their more sedentary parents in retirement, the demand for sports and recreation instructors and coaches will increase.

Earnings

Median hourly earnings of sports and physical training instructors and coaches were $10.69 in 1998. The middle 50 percent earned between $6.54 and $16.48 an hour. The lowest 10 percent earned less than $5.70 and the highest 10 percent earned more than $23.10 an hour. Median hourly earnings in the industries employing the largest number of sports and physical training instructors and coaches in 1997 were as follows:

Colleges and universities	$13.70
Elementary and secondary schools	11.00
Miscellaneous amusement and recreation services	9.70
Civic and social associations	7.80

Earnings vary by education level, certification, and geographic region. Some instructors and coaches are paid a salary, others may be paid by the hour, per session, or based on the number of participants.

Related Occupations

Coaches and instructors have extensive knowledge of physiology and sports, and instruct, inform, and encourage participants. Other workers with similar duties include athletic directors, athletic trainers, dietitians and nutritionists, physical therapists, recreational therapists, school teachers, and umpires.

Sources of Additional Information

Information about a career as a fitness professional is available from:

☛ American Council on Exercise, 5820 Oberlin Dr., Suite 102, San Diego, CA 92121-3787. Internet: **http://www.acefitness.org**

For information on a career as a coach, contact:

☛ National High School Athletic Coaches Association, P.O. Box 4342, Hamden, CT 06514. Internet: **http://www.hscoaches.org**

Librarians

(O*NET 31502A and 31502B)

Significant Points

- A master's degree in library science is usually required; special librarians often need an additional graduate or professional degree.

- Applicants for librarian jobs in large cities or suburban areas will face competition, while those willing to work in rural areas should have better job prospects.

Nature of the Work

The traditional concept of a library is being redefined, from a place to access paper records or books, to one which also houses the most advanced mediums, including CD-ROM, the Internet, virtual libraries, and remote access to a wide range of resources. Consequently, librarians are increasingly combining traditional duties with tasks involving quickly changing technology. Librarians assist people in finding information and using it effectively in their personal and professional lives. They must have knowledge of a wide variety of scholarly and public information sources, and follow trends related to publishing, computers, and the media to effectively oversee the selection and organization of library materials. Librarians manage staff and develop and direct information programs and systems for the public to ensure information is organized to meet users' needs.

Most librarian positions incorporate three aspects of library work—user services, technical services, and administrative services. Even librarians specializing in one of these areas perform other responsibilities. Librarians in user services, such as reference and children's librarians, work with the public to help them find the information they need. This involves analyzing users' needs to determine what information is appropriate, and searching for, acquiring, and providing information. It also includes an instructional role, such as showing users how to access information. For example, librarians commonly help users navigate the Internet, showing them how to most efficiently search for relevant information. Librarians in technical services, such as acquisitions and cataloguing, acquire and prepare materials for use and often do not deal directly with the public. Librarians in administrative services oversee the management and planning of libraries, negotiate contracts for services, materials, and equipment, supervise library employees, perform public relations and fundraising duties, prepare budgets, and direct activities to ensure that everything functions properly.

In small libraries or information centers, librarians usually handle all aspects of the work. They read book reviews, publishers' announcements, and catalogues to keep up with current literature and other available resources, and select and purchase materials from publishers, wholesalers, and distributors. Librarians prepare new materials by classifying them by subject matter, and describe books and other library materials so they are easy to find. They supervise assistants who prepare cards, computer records, or other access tools that direct users to resources. In large libraries, librarians often specialize in a single area, such as acquisitions, cataloguing, bibliography, reference, special collections, or administration. Teamwork is increasingly important to ensure quality service to the public.

Librarians also compile lists of books, periodicals, articles, and audiovisual materials on particular subjects, analyze collections, and recommend materials. They collect and organize books, pamphlets, manuscripts, and other materials in a specific field, such as rare books, genealogy, or music. In addition, they coordinate programs such as storytelling for children, and literacy skills and book talks for adults; conduct classes; publicize services; provide reference help; write grants; and oversee other administrative matters.

Librarians are classified according to the type of library in which they work—public libraries, school library media centers, academic libraries, and special libraries. Some librarians work with specific groups, such as children, young adults, adults, or the disadvantaged. In school library media centers, librarians help teachers develop curricula, acquire materials for classroom instruction, and sometimes team-teach.

Librarians also work in information centers or libraries maintained by government agencies, corporations, law firms, advertising agencies, museums, professional associations, medical centers, hospitals, religious organizations, and research laboratories. They build and arrange an organization's information resources, which are usually limited to subjects of special interest to the organization. These special librarians can provide vital information services by preparing abstracts and indexes of current periodicals, organizing bibliographies, or analyzing background information and preparing reports on areas of particular interest. For instance, a special librarian working for a corporation could provide the sales department with information on competitors or new developments affecting their field.

Many libraries have access to remote databases, and maintain their own computerized databases. The widespread use of automation in libraries makes database searching skills important to librarians. Librarians develop and index databases and help train users to develop searching skills for the information they need. Some libraries are forming consortiums with other libraries through electronic mail. This allows patrons to simultaneously submit information requests to several libraries. The Internet is also expanding the amount of available reference information. Librarians must be aware of how to use these resources in order to locate information.

Librarians with computer and information systems skills can work as automated systems librarians, planning and operating computer systems, and information science librarians, designing information storage and retrieval systems and developing procedures for collecting, organizing, interpreting, and classifying information. These librarians analyze and plan for future information needs. (See statements on computer engineers and scientists and computer systems analysts elsewhere in the *Handbook*.) The increased use of automated information systems enables librarians to focus on administrative and budgeting responsibilities, grant writing, and specialized research requests, while delegating more technical and user services responsibilities to technicians. (See statement on library technicians elsewhere in the *Handbook*.)

Increasingly, librarians apply their information management and research skills to arenas outside of libraries—for example, database development, reference tool development, information systems, publishing, Internet coordination, marketing, and training of database users. Entrepreneurial librarians sometimes start their own consulting practices, acting as free-lance librarians or information brokers and providing services to other libraries, businesses, or government agencies.

Working Conditions

Librarians spend a significant portion of time at their desks or in front of computer terminals; extended work at video display terminals can

Librarians in small libraries are more likely to have a wide range of duties.

cause eyestrain and headaches. Assisting users in obtaining information for their jobs, recreational purposes, and other uses can be challenging and satisfying; at the same time, working with users under deadlines can be demanding and stressful.

More than 2 out of 10 librarians work part time. Public and college librarians often work weekends and evenings, and have to work some holidays. School librarians usually have the same workday schedule as classroom teachers and similar vacation schedules. Special librarians usually work normal business hours, but in fast-paced industries, such as advertising or legal services, they can work longer hours during peak times.

Employment

Librarians held about 152,000 jobs in 1998. Most were in school and academic libraries; others were in public and special libraries. A small number of librarians worked for hospitals and religious organizations. Others worked for governments.

Training, Other Qualifications, and Advancement

A master's degree in library science (MLS) is necessary for librarian positions in most public, academic, and special libraries, and in some school libraries. The Federal Government requires an MLS or the equivalent in education and experience. Many colleges and universities offer MLS programs, but employers often prefer graduates of the approximately 50 schools accredited by the American Library Association. Most MLS programs require a bachelor's degree; any liberal arts major is appropriate.

Most MLS programs take 1 year to complete; others take 2. A typical graduate program includes courses in the foundations of library and information science, including the history of books and printing, intellectual freedom and censorship, and the role of libraries and information in society. Other basic courses cover material selection and processing, the organization of information, reference tools and strategies, and user services. Courses are adapted to educate librarians to use new resources brought about by advancing technology such as on-line reference systems, Internet search methods, and automated circulation systems. Course options can include resources for children or young adults; classification, cataloguing, indexing, and abstracting; library administration; and library automation. Computer related course work is an increasingly important part of an MLS degree.

An MLS provides general preparation for library work, but some individuals specialize in a particular area such as reference, technical services, or children's services. A Ph.D. degree in library and information science is advantageous for a college teaching position, or a top administrative job in a college or university library or large library system.

In special libraries, an MLS is also usually required. In addition, most special librarians supplement their education with knowledge of the subject specialization, sometimes earning a master's, doctoral, or professional degree in the subject. Subject specializations include medicine, law, business, engineering, and the natural and social sciences. For example, a librarian working for a law firm may also be a licensed attorney, holding both library science and law degrees. In some jobs, knowledge of a foreign language is needed.

State certification requirements for public school librarians vary widely. Most States require school librarians, often called library media specialists, to be certified as teachers and have courses in library science. In some cases, an MLS, perhaps with a library media specialization, or a master's in education with a specialty in school library media or educational media, is needed. Some States require certification of public librarians employed in municipal, county, or regional library systems.

Librarians participate in continuing training once they are on the job to keep abreast of new information systems brought about by changing technology.

Experienced librarians can advance to administrative positions, such as department head, library director, or chief information officer.

Job Outlook

Slower than average employment growth, coupled with an increasing number of MLS graduates, will result in more applicants competing for fewer jobs. However, because MLS programs increasingly focus on computer skills, graduates will be qualified for other, computer-related occupations. Applicants for librarian jobs in large metropolitan areas, where most graduates prefer to work, will face competition; those willing to work in rural areas should have better job prospects.

Some job openings for librarians will stem from projected slower-than-average employment growth through 2008. Replacement needs will account for more job openings over the next decade, as some librarians reach retirement age.

The increasing use of computerized information storage and retrieval systems could contribute to slow growth in the demand for librarians. Computerized systems make cataloguing easier, which library technicians now handle. In addition, many libraries are equipped for users to access library computers directly from their homes or offices. These systems allow users to bypass librarians and conduct research on their own. However, librarians are needed to manage staff, help users develop database searching techniques, address complicated reference requests, and define users' needs.

Opportunities will be best for librarians outside traditional settings. Nontraditional library settings include information brokers, private corporations, and consulting firms. Many companies are turning to librarians because of their research and organizational skills, and knowledge of computer databases and library automation systems. Librarians can review vast amounts of information and analyze, evaluate, and organize it according to a company's specific needs. Librarians are also hired by organizations to set up information on the Internet. Librarians working in these settings may be classified as systems analysts, database specialists and trainers, webmasters or web developers, or LAN (local area network) coordinators.

Earnings

Salaries of librarians vary according to the individual's qualifications and the type, size, and location of the library. Librarians with primarily administrative duties often have greater earnings. Median annual earnings of librarians in 1998 were $38,470. The middle 50 percent earned between $30,440 and $48,130. The lowest 10 percent earned less than $22,970 and the highest 10 percent earned more than $67,810. Median annual earnings in the industries employing the largest numbers of librarians in 1997 were as follows:

Elementary and secondary schools	$38,900
Colleges and universities	38,600
Local government, except education and hospitals	32,600

The average annual salary for all librarians in the Federal Government in nonsupervisory, supervisory, and managerial positions was $56,400 in 1999.

Related Occupations

Librarians play an important role in the transfer of knowledge and ideas by providing people with access to the information they need and want. Jobs requiring similar analytical, organizational, and communicative skills include archivists, information scientists, museum curators, publishers' representatives, research analysts, information brokers, and records managers. The management aspect of a librarian's work is similar to the work of managers in a variety of business and government settings. School librarians have many

duties similar to those of school teachers. Other jobs requiring the computer skills of some librarians include webmasters or web developers, database specialists, and systems analysts.

Sources of Additional Information

Information on librarianship, including information on scholarships or loans, is available from the American Library Association. For a listing of accredited library education programs, check their homepage:

☛ American Library Association, Office for Human Resource Development and Recruitment, 50 East Huron St., Chicago, IL 60611. Internet: **http://www.ala.org**

For information on a career as a special librarian, write to:

☛ Special Libraries Association, 1700 18th St. NW., Washington, DC 20009.

Information on graduate schools of library and information science can be obtained from:

☛ Association for Library and Information Science Education, P.O. Box 7640, Arlington, VA 22207. Internet: **http://www.sils.umich.edu/ALISE**

For information on a career as a law librarian, scholarship information, and a list of ALA-accredited schools offering programs in law librarianship, contact:

☛ American Association of Law Libraries, 53 West Jackson Blvd., Suite 940, Chicago, IL 60604. Internet: **http://www.ala.org**

For information on employment opportunities as a health sciences librarian, scholarship information, credentialing information, and a list of MLA-accredited schools offering programs in health sciences librarianship, contact:

☛ Medical Library Association, 6 N. Michigan Ave., Suite 300, Chicago, IL 60602. Internet: **http://www.mlanet.org**

Information on acquiring a job as a librarian with the Federal Government may be obtained from the Office of Personnel Management through a telephone-based system. Consult your telephone directory under U.S. Government for a local number or call (912) 757-3000; TDD (912) 744-2299. That number is not toll free and charges may result. Information also is available from their Internet site: **http://www.usajobs.opm.gov**

Information concerning requirements and application procedures for positions in the Library of Congress can be obtained directly from:

☛ Human Resources Office, Library of Congress, 101 Independence Ave. SE., Washington, DC 20540-2231.

State library agencies can furnish information on scholarships available through their offices, requirements for certification, and general information about career prospects in the State. Several of these agencies maintain job hotlines reporting openings for librarians.

State departments of education can furnish information on certification requirements and job opportunities for school librarians.

Many library science schools offer career placement services to their alumni and current students. Some allow non-affiliated students and jobseekers to use their services.

Library Technicians

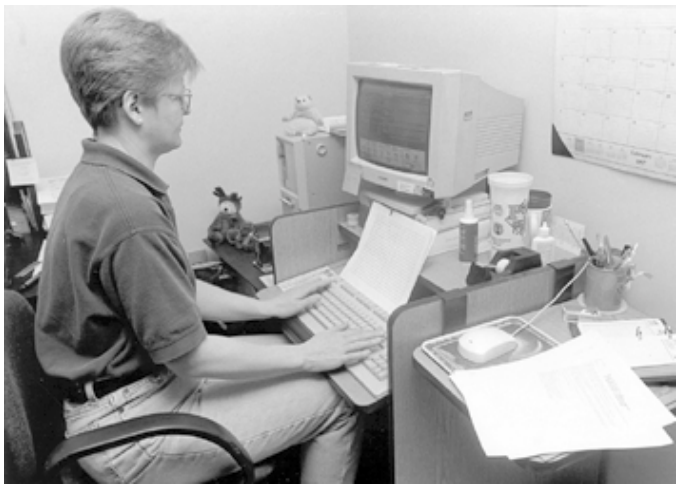
(O*NET 31505)

Significant Points

- Training ranges from on-the-job to a bachelor's degree.
- Experienced library technicians can advance by obtaining a Master of Library Science degree.

Nature of the Work

Library technicians help librarians acquire, prepare, and organize material, and assist users in finding information. Technicians in small libraries handle a range of duties; those in large libraries usually specialize. As libraries increasingly use new technologies—such as CD-ROM, the Internet, virtual libraries, and automated databases—the duties of library technicians will expand and evolve accordingly. Library technicians are assuming greater responsibilities, in some cases taking on tasks previously performed by librarians. (See the statement on librarians elsewhere in the *Handbook*.)



Library technicians help librarians acquire, prepare, and organize material.

Depending on the employer, library technicians can have other titles, such as library technical assistants. Library technicians direct library users to standard references, organize and maintain periodicals, prepare volumes for binding, handle interlibrary loan requests, prepare invoices, perform routine cataloguing and coding of library materials, retrieve information from computer databases, and supervise support staff.

The widespread use of computerized information storage and retrieval systems has resulted in technicians handling more technical and user services, such as entering catalogue information into the library's computer, that were once performed by librarians. Technicians assist with customizing databases. In addition, technicians instruct patrons how to use computer systems to access data. The increased use of automation has reduced the amount of clerical work performed by library technicians. Many libraries now offer self-service registration and circulations with computers, decreasing the time library technicians spend manually recording and inputting records.

Some library technicians operate and maintain audiovisual equipment, such as projectors, tape recorders, and videocassette recorders, and assist users with microfilm or microfiche readers. They also design posters, bulletin boards, or displays.

Those in school libraries encourage and teach students to use the library and media center. They also help teachers obtain instructional materials and assist students with special assignments. Some work in special libraries maintained by government agencies, corporations, law firms, advertising agencies, museums, professional societies, medical centers, and research laboratories, where they conduct literature searches, compile bibliographies, and prepare abstracts, usually on subjects of particular interest to the organization.

Working Conditions

Technicians answer questions and provide assistance to library users. Those who prepare library materials sit at desks or computer terminals for long periods and can develop headaches or eyestrain from working with video display terminals. Some duties, like calculating circulation statistics, can be repetitive and boring. Others, such as performing computer searches using local and regional library networks and cooperatives, can be interesting and challenging.